

WHAT IS CLAIMED AS NEW AND DESIRED TO BE SECURED BY LETTERS PATENT  
OF THE UNITED STATES IS:

*SUB A<sup>2</sup>* 1. A method for providing multi-user access to a packet switched network, the method comprising:

5        executing a communication software on a plurality of end user stations that communicate over a local area network (LAN) supporting an Ethernet-based LAN protocol, the communication software being based upon a communication protocol that establishes a point-to-point communication session;

10        generating packets by the plurality of end user stations based upon the communication protocol;

15        selectively encapsulating the communication protocol packets using the Ethernet-based LAN protocol;

20        transmitting the encapsulated packets by a customer premise equipment (CPE) that is coupled to the LAN;

25        simultaneously carrying the point-to-point communication sessions over a communication channel;

30        terminating the point-to-point communication sessions at a remote access server; and recovering the packets and forwarding the packets to the packet switched network.

35        2. The method according to claim 1, wherein the communication protocol in the executing step is Point-to-Point Protocol (PPP).

40        3. The method according to claim 1, wherein the CPE in the step of transmitting is a digital subscriber line (DSL) modem.

4. The method according to claim 1, wherein the communication channel in the step of simultaneously carrying exists over an ATM network.

5. The method according to claim 4, further comprising assigning a Permanent Virtual Circuit (PVC) associated with the ATM network to the CPE.

5 6. The method according to claim 5, further comprising mapping the point-to-point communication sessions to distinct VPI/VCIs (Virtual Path Identifier/Virtual Connection Identifier).

7. The method according to claim 1, further comprising dynamically selecting network services.

10 8. The method according to claim 1, wherein the packets conform with Ethernet V2 format.

9. The method according to claim 1, further comprising processing individual accounting information for each of the plurality of end user stations.

15 10. A communication system for providing multi-user access to a packet switched network, the communication system comprising:

a local area network (LAN) supporting an Ethernet-based LAN protocol;

a plurality of end user stations connected to the LAN, each of the plurality of end user stations executing a communication software that is based upon a communication protocol that establishes a point-to-point communication session, the plurality of end user stations generating  
20 packets based upon the communication protocol, each of the plurality of end user stations selectively encapsulating the communication protocol packets using the Ethernet-based LAN protocol;

a customer premise equipment (CPE) coupled to the LAN and configured to transmit the encapsulated packets;

a line terminating equipment communicating with the CPE;

a multiplexer/demultiplexer coupled to the line terminating equipment and configured to receive the point-to-point communication sessions, the multiplexer/demultiplexer simultaneously carrying the point-to-point communication sessions over a communication channel;

a remote access server communicating with the multiplexer/demultiplexer and configured to terminate the point-to-point communication sessions, the remote access server recovering the packets and forwarding the packets; and

a router coupled to the remote access server and configured to receive the packets, the router forwarding the packets to the packet switched network.

11. The system according to claim 10, wherein the communication protocol is Point-to-Point Protocol.

12. The system according to claim 10, wherein the CPE is a digital subscriber line (DSL) modem and the line terminating equipment is a DSL access multiplexer (DSLAM).

13. The system according to claim 12, wherein the multiplexer/demultiplexer is an ATM switch.

14. The system according to claim 13, wherein the communication channel is a Permanent Virtual Circuit (PVC), the PVC being associated with the CPE.

15. The system according to claim 14, wherein the point-to-point communication sessions are individually mapped to distinct VPI/VCIs (Virtual Path Identifier/Virtual Connection Identifier).

16. The system according to claim 10, wherein each of the plurality of end user stations dynamically selects network services.

17. The system according to claim 10, wherein the packets conform with Ethernet V2 format.

18. The system according to claim 10, wherein the remote access server processes individual accounting information for each of the plurality of end user stations.

19. A computer-readable medium carrying one or more sequences of one or more instructions for providing multi-user access to a packet switched network, the one or more sequences of one or more instructions including instructions which, when executed by one or more processors, cause the one or more processors to perform the steps of:

executing a communication software on a plurality of end user stations that communicate over a local area network (LAN) supporting an Ethernet-based LAN protocol, the communication software being based upon a communication protocol that establishes a point-to-point communication session;

generating packets by the plurality of end user stations based upon the communication protocol;

selectively encapsulating the communication protocol packets using the Ethernet-based LAN protocol; and

transmitting the encapsulated packets by a customer premise equipment (CPE) that is coupled to the LAN.

20. The computer-readable medium according to claim 19 wherein the communication protocol in the executing step is Point-to-Point Protocol (PPP).

21. The computer-readable medium according to claim 19, wherein the CPE in the step of transmitting is a digital subscriber line (DSL) modem.

22. The computer-readable medium according to claim 19, further comprising dynamically selecting network services.

5 23. The computer-readable medium according to claim 19, wherein the packets conform with Ethernet V2 format.

10  
15  
20  
25  
30  
35  
40  
45  
50  
55  
60  
65  
70  
75  
80  
85  
90  
95  
100  
105  
110  
115  
120  
125  
130  
135  
140  
145  
150  
155  
160  
165  
170  
175  
180  
185  
190  
195  
200  
205  
210  
215  
220  
225  
230  
235  
240  
245  
250  
255  
260  
265  
270  
275  
280  
285  
290  
295  
300  
305  
310  
315  
320  
325  
330  
335  
340  
345  
350  
355  
360  
365  
370  
375  
380  
385  
390  
395  
400  
405  
410  
415  
420  
425  
430  
435  
440  
445  
450  
455  
460  
465  
470  
475  
480  
485  
490  
495  
500  
505  
510  
515  
520  
525  
530  
535  
540  
545  
550  
555  
560  
565  
570  
575  
580  
585  
590  
595  
600  
605  
610  
615  
620  
625  
630  
635  
640  
645  
650  
655  
660  
665  
670  
675  
680  
685  
690  
695  
700  
705  
710  
715  
720  
725  
730  
735  
740  
745  
750  
755  
760  
765  
770  
775  
780  
785  
790  
795  
800  
805  
810  
815  
820  
825  
830  
835  
840  
845  
850  
855  
860  
865  
870  
875  
880  
885  
890  
895  
900  
905  
910  
915  
920  
925  
930  
935  
940  
945  
950  
955  
960  
965  
970  
975  
980  
985  
990  
995